

## Go West, Young Bandicoot

### Changes in the Japanese version of “Crash Bandicoot” for Playstation

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## Introduction

North America and Japan are each major markets for video games and major producers of video games. However, their cultures and their game markets are very different. Game designers therefore face the need to tailor their product to these differences. In this paper, we will look at how Naughty Dog, designers of **Crash Bandicoot**, tailored their Playstation game, developed and released in the US in the mid-1990's, for the specific

requirements of Japan. **Crash Bandicoot** stands out because it is one of the few games designed outside Japan to achieve market leadership in Japan.

It is interesting that doing this adaptation well requires more than just translating English-language text into Japanese; it requires informed design choices at the earliest stages, changes to underlying game technology, different characterisations, graphics, and packaging, and changes in gameplay. While we don't look at the marketing of **Crash** product in this paper, these changes we discuss tie into the marketing approach of the product.

The **Crash Bandicoot** games were 3<sup>rd</sup>-person action games for the Sony Playstation. They were celebrated for their engaging lead character, outstanding graphics, and 3-D look. They were developed by the Naughty Dog studio and released by Sony Computer Entertainment between 1996 and 1999, and sold a total of over 10 million copies worldwide. We give more details of their history below.

## US Games in the Japanese Videogame Market

North America, Japan, and Europe are the top three console game markets in the world, with shares of roughly 42%, 27%, and 31% respectively in 2001<sup>1</sup>. The top game designers in these markets are mostly American and Japanese. Almost all of the top 50 best selling games since 1995 in either the US and Japan were developed by US or Japanese developers<sup>2</sup>. In a list of the top-selling games in the US in 2001, 4 were by Japanese developers, 4 by US developers, one was a US-Japan joint venture, and one was European<sup>3</sup>. So there is a steady flow of Japanese titles to the North American game market.

Remarkably, in the opposite direction there is almost none. Very few titles developed in the North America are big hits in Japan. For example, **Grand Theft Auto III** has sold only 300,000 copies in Japan versus 6 million in the US<sup>4</sup>; the **Tomb Raider** series has sold only 200,000 units versus 2 million in the US<sup>5</sup>. And those are relative successes; other big North American hits have sold even less well in Japan. Many commentators have observed this phenomenon<sup>6</sup>.

Why do so few foreign games become big hits in Japan? There are many articles and conference presentations on the topic. Tsurumi and Hasegawa, two Japanese game designers, cite a Japanese fondness for *anime* graphics style, as well as different genre preferences (Role-Playing Games, or RPG, and dating games over First-Person Shooters, or FPS)<sup>7</sup>. Shu Yoshida, VP of Sony Computer Entertainment America, emphasizes the need to adjust characters to fit Japanese tastes, and get the marketing right<sup>8</sup>. Ricciardi

blames “half-assed localization with the minimal amount of Japanese necessary for gamers to get by”<sup>9</sup>. Cerny agrees, citing the derisive Japanese slang 洋ゲ (*yohge*, or “western games”), with a connotation of foreign games with good graphics but poor gameplay and comprehensibility<sup>10</sup>.

There is also an asymmetry in market opportunity: a Japanese developer sees a North American market that is 155% increment to the home market, while a North American developer sees a Japanese market that is only a 64% increment<sup>11</sup>. Given the poor track record of overseas developers in Japan, the likely revenue increment is even lower. To complete the picture, the language versions a Japanese developer would need to make for North America (English, French, perhaps Spanish) could be also be sold in Europe, while the Japanese version of a North American product serves only Japan.

But in this bleak picture, one game series stands out. In terms of unit sales by a foreign-designed game in Japan, the **Crash Bandicoot** series is the best game ever. Yoshida lists 12 “globally successful [game] products”, and the **Crash Bandicoot** series is the only non-Japanese product on the list<sup>12</sup>. He reports that the entire 5-game series sold 4.5 million units<sup>13</sup>. Magic Box, a market research service on the Japanese games market, reports that two of the **Crash** games are #86 and #94 in the list of 155 Platinum (million-selling) games since 1995<sup>14</sup>. These are the top ranked non-Japanese products<sup>15</sup>. Ricciardi describes **Crash** as “the most notable case in recent memory of a Western game becoming really popular in Japan”<sup>16</sup>.

So what makes the **Crash Bandicoot** series an exception? There are factors related to product, and factors related to marketing. We will examine the product factors in this paper. We will not cover the marketing aspects in depth in this paper, so let us simply quote John Ricciardi, of game localizer Interone Inc., on the marketing:

Firstly, there was marketing: “Simply put, Sony did a superb job marketing the games. The Crash TV commercials were among the funniest game commercials in Japan at the time, and they spent a ton of money making sure everyone who owned a PlayStation knew who Crash was.” Second, there's the question of timing: “Crash launched at a time when the PlayStation was enormously popular with young people and females in Japan. It was the ‘in’ thing for 20-something girls to own a PlayStation at that time, and that kind of crowd was perfect for a cute character-based action game.”<sup>17</sup>

Yoshida also discusses marketing issues like TV ad campaigns, a game-themed comic book, and a costumed Crash Bandicoot mascot, theme music, and a signature dance<sup>18</sup>.

We don't claim that the product adaptations in **Crash** are a sufficient condition for market success in Japan, but they are likely necessary. Before examining the product adaptations, let us look at the history of the games and their makers.

## **Crash Bandicoot and *Kurasshu-Bandikuu***

In August of 1994, Jason Rubin and Andy Gavin were relocating their small game design firm Naughty Dog from Boston to Los Angeles when they came up with the concept for a new action game. In Los Angeles, they connected with Mark Cerny of Universal Interactive Studios, who gave them the go-ahead to develop the game that would become **Crash Bandicoot**. Cerny was something of a legend already, having joined Atari at age 17, where he designed several games. He was freshly arrived at Universal Interactive Studios after seven years working with Sega, in both Japan and the US. He brought a strong familiarity with the Japanese language, market, and games industry.<sup>19</sup>

At that same time, Sony was developing the Playstation. During 1994, Sony recruited game developers for the Playstation. Naughty Dog signed up, and in September 1994 received a development system. Sony released Playstation in Japan in December 1994, and in the US in September 1995<sup>20</sup>.

**Crash Bandicoot**<sup>21</sup> was released in the US in August 1996, and in Europe in November. *クラッシュ・バンディクー* (*kurasshu•bandikuu*) was released in Japan in December 1996, and was a smash hit immediately in all markets. Meanwhile, production on **Crash Bandicoot 2: Cortex Strikes Back** had begun in October 1996, and the game was released in the US in November 1997, and in Europe in December. *クラッシュ・バンディクー 2 : コルテックスのぎゃくしゅう* (*kurasshu•bandikuu tssu: korutekkusu no gyakushuu*) was also released in December 1997. **Crash Bandicoot 3: Warped** (*クラッシュ・バンディクー3〜ブツとび! 世界一周〜*, or *kurasshu bandikuu tsuree - bu' tobi sekai isshuu*) was released in October-December 1998 worldwide.

During 1999, first **Crash Bandicoot 3** and then **Crash Bandicoot 2** reached the million-game sales mark in Japan alone, and worldwide sales of the trilogy reached over 10 million. A fourth game, **Crash Team Racing** (**Crash Bandicoot Racing** in Japan) was released in late 1999, and this was the last Crash Bandicoot title to be developed by Naughty Dog.<sup>22</sup>

The **Crash Bandicoot** games are of the “3<sup>rd</sup> person action game” genre. It is 3<sup>rd</sup> person, in that the player sees the Crash character in the game world from an external vantage point, rather than through Crash’s eyes. It is an action game, in that game play consists of running, jumping, bouncing, and bashing one’s way through the game world. It is called a “platform game” in the Mario tradition, in that the character follows a mostly linear track through the world.

The radical innovation with **Crash Bandicoot**, though, was to set the track perpendicular to the screen, so that player appears to dive into the game world. The Japanese game package emphasised this innovation with the slogan, “The first distance-scrolling action game in the universe!”<sup>23</sup> This also made it possible to give the character some limited side-to-side motion, as well as motion along the game track. All this added up to a novel three-dimensional look to the game.

The Crash character is cute and engaging. He looks like a furry animal, somewhat anthropomorphised, wearing cutoff jeans and large tennis shoes. He appears to have a naughty sense of humour. He does not speak, beyond the odd exclamation when jumping into a level or falling off a ledge.

It is worth noting that the Crash character was the first attractive and distinctive character to become a hit on the Playstation, so it assumed the role of *de facto* mascot, like Mario for Nintendo or Sonic the Hedgehog for Sega. This gave Sony an incentive to promote the Crash character as a means of promoting the Playstation platform, which also benefited **Crash Bandicoot** game sales.

## **Transcending Culture through Game Design**

In what ways, then, were the **Crash Bandicoot** games well-suited to make a successful trip west from Los Angeles to Japan? We will look first at the ways the games, through their design, transcended cultural differences, and secondly at adaptations specific to the Japanese culture and market. We will look at characters, game world, game play activity, and game play difficulty. We will focus on **Crash Bandicoot 1**, but these comments also apply to **Crash Bandicoot 2**.

### ***A Game World Transcending Cultures***

All the characters in the **Crash Bandicoot** world are colourful, engaging cartoon animals or caricatured humans. By being caricatures, they are not too closely identified with any one culture, and are therefore universal. Mickey Mouse works the same way. The game is

designed so that there is almost no speech or language by the characters (except for some movies played before the game starts). This greatly reduces the need to localise or adapt text and speech in game play.

The game unfolds in imaginary landscapes, not rooted to specific places. It starts with themes of tropical islands and jungles, with carvings that look vaguely Aztec or Polynesian. Figure 1 gives an example. Later, the game moves into fanciful castles and spaceships. But in all cases setting is non-specific. This makes it easy for players from many cultures to identify with them.



Source: screen shot by author. (Shot is of Crash Bandicoot 2, but Crash Bandicoot 1 looks roughly similar.)

**Figure 1: Crash Bandicoot's world**

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It also has the benefit of bypassing Japanese resistance to things non-Japanese. Japan is a more culturally uniform market than North America. Crash Bandicoot was not promoted as a foreign game, so many customers probably thought it was Japanese.<sup>24</sup>

The gameplay activity of Crash Bandicoot is to run along a linear path through the world, jumping over and around obstacles, and bypassing dangerous critters. This is an abstract, and culturally transcendent, activity. By contrast, US games about culturally specific activities, like skateboarding, surfing, or hunting, are much more difficult to adapt<sup>25</sup>. The reverse is true: Derby Stallion, a horse-racing game for the Playstation, sold over 2 million copies in Japan, but since horse-racing isn't a popular game genre in North America, it was never brought over<sup>26</sup>.

### ***Making game play easier***

Multiple commentators observe that the Japanese Playstation market preferred a lower difficulty level than did North America<sup>27</sup>. Mark Cerny reports that the Crash team wanted the Japanese game to be やさしい or *yasashii*, a word that means both “easy”, as in not difficult, and “easy-going”, as in friendly.

Therefore, Naughty Dog and Sony conducted game testing of **Crash Bandicoot**. They got very negative feedback from Japanese testers that the game was too difficult, that players were dying inappropriately. So Mark Cerny spent a good six months at about half time adjusting the content of the levels to make them easier. The result was incorporated into the both the North American and Japanese editions of the games, but the motivation came from Japan<sup>28</sup>.

All of the above examples of design decisions point to the power of allowing for a range of target markets early in the game design. Only allowing the feedback of global markets to start after the design for the primary market is frozen greatly reduces the scope of possible changes, and increases the expense of many kinds of change.

### **Localising Crash Bandicoot to *Kurasshu-Bandikuu***

Despite a design that was intentionally aimed at transcending cultural differences, there were still changes made to the Japanese version of the product. We can group these changes into four classes: game content localisation, technology changes, gameplay changes, and packaging changes. These changes are known as “localisation”, a concept which reaches beyond gameplay to commercial software, web sites, and beyond.<sup>29</sup>

#### ***Game content localisation***

Game content refers to all the text, artwork, and sounds that appear in the game but which have no functional affect on the game. For instance, the contents of the text in the name of a level are immaterial to the operation of the game, they are recognised only by the user, so we call them “game content”.

There is very little text or dialogue used in **Crash Bandicoot**. There are game load and save messages, the “game over” messages, the game title in the opening movies, the titles of levels. These are all translated into Japanese. Note that translating fragments of text can be non-trivial. For instance, the names of the levels in the North American version of **Crash Bandicoot** were witty and evocative; the translators faced the challenge of making correspondingly witty names, and sometimes had to take poetic license.

Figure 2 shows the name of the first stage in the North American and Japanese games. The North American name for the stage is “N. Sanity Beach”. The Japanese name is 「めざめのビーチ」, *mezame biichi*, or literally “Wake-up Beach”. Note how the Japanese name is not a literal translation, though it does refer to the gameplay. It is a gentler wording.



North American



Japanese

Screen shot of the inter-stage navigation screen in **Crash Bandicoot**. Note the stage name in the upper left. This shows two things: that the Japanese game can display Japanese text, and that the Japanese text was translated in a loose rather than literal way.

Sources: screen shots by author

**Figure 2: Inter-stage navigation screen**

At the beginning of **Crash Bandicoot**, there is a brief movie which gives the game’s back-story. The evil, power-hungry scientist Dr. Neo Cortex and his crazy assistant Dr. N Brio are performing Frankenstein-like experiments on various animals, including the bandicoot that gets mutated into the Crash character. In the North American game, Cortex speaks with a silky, Boris Karloff like voice; in the Japanese version, his voice is gruffer and his words somewhat archaic, reminiscent of TV dramas of the samurai era. Similarly, N Brio’s voice type and word usage is adapted.

These differences are a hint of the subtlety that goes into the voice acting for a game. In order to do a good job, the localisers need to make quite subtle judgments about character, wording, expression, and voice actor casting. Also, depending on how mouth and lip movements are animated, lip syncing may be an issue. The mouth movements for one language may not work for another, calling for the animation for the movie to be modified to fit the new spoken words.



These dialogue issues are greater in **Crash Bandicoot 2**, which features more movies during the course of the game, and speaking parts from more of the characters.

Localising text is obvious, localising sound and music is less so. The Japanese version of **Crash Bandicoot 2** replaced the music used under the opening titles of the North American version by Japan-specific music that had been featured in the television advertising campaign for **Crash Bandicoot**. They also added a dance, originally used by the Crash Bandicoot life-sized mascot in Japan, into the second game worldwide<sup>30</sup>. The original game was remediated into a marketing campaign, which in turn was remediated into the second version of the game.

In the palette of sounds that play during a game, some may have cultural connotations and need to be localised. Crash Bandicoot is largely free of those, one suspects by design. There are some details that change, however. One is the yelp that Crash makes when he starts a saved game. That yelp is localised into the Japanese 「いゝぞ！」 (*iku zo*, or “let’s get going!”). This shows how detailed a good localisation needs to be.

And it’s not just sound, it’s graphics. Changes to graphics take two forms: changes to text that is embedded in graphics, and changes to graphics because of their cultural connotations. The **Crash** series provides examples of both. In the opening movie of **Crash Bandicoot**, the camera pans past a wall of animal cages, each cage labelled with the name of an animal. Those animal names are written in English for the North American game, and in Japanese for the Japanese game. This meant that that graphic had to be redrawn, and the movie re-shot, for the Japanese version. In **Crash Bandicoot 2**, the warp rooms have a series of doors with the name of a level inscribed above each. Those names, and therefore the warp room graphics, were localised for the Japanese version.

**Crash Bandicoot** also features crates of TNT and crates of nitroglycerin that explode in interesting ways. The appearance of these crates is localised. In the North American game, the TNT box has the letters “TNT” on the side. In the Japanese game, the letters are replaced by the picture of a bomb. The letters TNT are known in Japanese, but the bomb image apparently worked better. The nitroglycerin crates are labeled “nitro” in the North American game, and the equivalent 「ニトロ」 in the Japanese game.

### ***Enabling technology changes***

In many cases, comprehensive localisation requires adding features that weren’t present in the original product in order to meet local needs. **Crash Bandicoot** has examples of this kind of change, though they are minor and technical in nature.

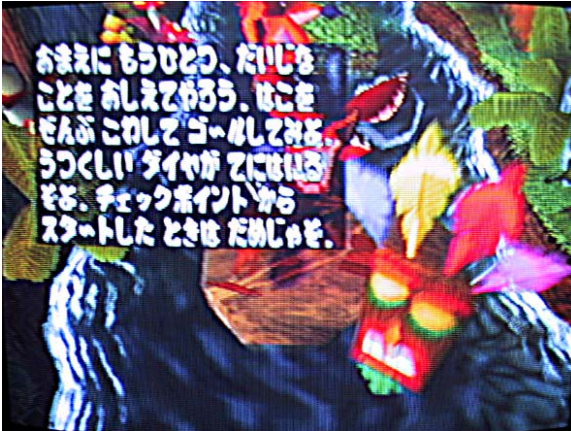
In order to display Japanese text, the game's text-handling system had to be modified. There is no direct evidence what sort of modification was made. But in the "Save Game" screen, there is indirect evidence. When a Playstation game saves a player's state to a memory card, it writes the name of the game onto the card. The Japanese versions of **Crash Bandicoot** and **Crash Bandicoot 2** can display both English and Japanese game names, while the North American versions display Japanese names as a string of question marks. This indicates that the Japanese game's text handling system has a broader capability than just Japanese, while the North American version may support languages beyond Japanese (e.g. European languages) but not Japanese.

The extended save game UI in **Crash Bandicoot 2** allows the player to attach a name to their saved game, and here again the extended linguistic functionality of the Japanese version shows through. The North American game only lets the user spell with 26 letters and a space. The Japanese version adds the Japanese scripts hiragana, katakana, as well as numbers. It turns out numbers would have been helpful for North American players names too. This is another case of extending support for specific market, resulting in features that are globally useful.

### ***Gameplay changes***

While the game play of the Japanese and North American versions of **Crash Bandicoot** are nearly identical, there are two differences, and they are interesting for different reasons.

One character in the game is Aku-Aku, a kind of witch doctor. Aku-Aku's masks are scattered around the game world. During the course of the game, Crash can discover and put on Aku Aku's masks, and they protect him from one otherwise fatal encounter with the game's critters. In the Japanese, but not the North American, versions of **Crash Bandicoot** and **Crash Bandicoot 2**, the Aku Aku mask also volunteers advice. It may tell about how to accomplish goals, or how to evade an upcoming hazard. The figure below gives one example of this help. Figure 3 gives an example of this.

**Screen shot****Text**

「おまえにもう一つ、だいじなことをおしえてやろう。はこをぜんぶこわしてゴールしてみよ。うつくしいダイヤてにはいるそよ。チェックポイントからスタートしたときはだめじゃぞ。」

**Translation:** “I shall tell ye one precious lesson more. Break ye all the boxes and ye shall reach thy goal. Beauteous diamonds shall be thine. But if ye start after the check point, it shall avail ye not.” The Japanese text uses archaic wording, in a gruff but friendly tone, the tone of a teacher to a pupil. The translation attempts to convey the effect.

Source: screen shot by author. Mask is blurry because it bounces and swoops.

**Figure 3: Example of Aku-Aku mask help**

Another example of gameplay change may seem trivial, but is not. In the **Crash Bandicoot** screen where the player saves games, the player presses a button to confirm that the game should be saved. In the North American version of the game, this button is the × button. But in the Japanese version, the player has the choice of the ○ or the × button. The distinction may seem subtle. But it must be important, because making this change involves a change to button handling code of the game, not just the text or graphics on-screen, so it requires more work to perform and to test for bugs. And another developer, Stuart Roch, alludes to making a similar change in the Japanese version of Wildroid 9<sup>31</sup>.

The issue is that Japanese culture attaches specific meaning to the × or *batsu* shape. It means “no” or “bad” or “wrong”. The ○ or *maru* shape means “yes” or “good” or “correct”. Because the Crash localisers took the trouble to change the button usage, they probably felt it was a serious gameplay problem to have to push the “no” button when saving a game. The moral of the story is that effective localisation is subtle, and that an aspect of the game which is unmarked or neutral in one culture may be marked or in another.

### **Product packaging changes**

To a game designer or engineer, what matters is what’s in the game, but to the person with business responsibility for a product, the package is critical. And the North

American and Japanese versions of **Crash Bandicoot** differ significantly in their packaging.

The first observation is that the cover artwork is different. The North American bandicoot is baring its teeth prominently, and looks a little wild. There is a sense of impending mayhem. The Japanese bandicoot is rushing directly at the viewer, teeth much less prominent, body generally more rounded and tame-looking. The eyes convey excitement and glee.



North American

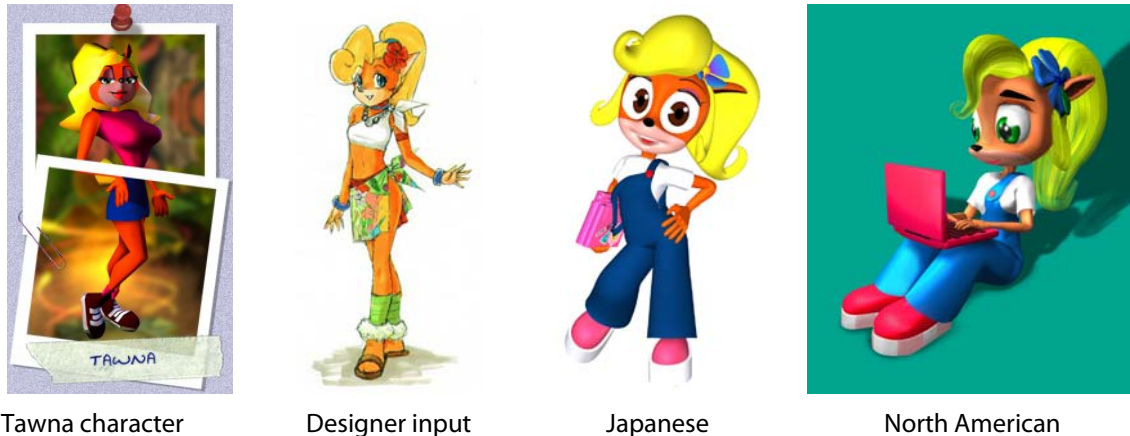


Japanese

Package cover artwork in **Crash Bandicoot**. Note the difference in the appearance of the Crash character, which was driven by different cultural preferences in North America compared to Japan.  
Sources: scan by author, (Yoshida 2002)

**Figure 4: Design treatment of Crash on package cover**

This is no accident. Both Yoshida and Tsurumi and Hasegawa<sup>32</sup> describe Japanese marketing team took pains to soften the images of the Crash characters to meet Japanese tastes. These changes happen with other characters. Figure 5 below shows how the design treatment of the female supporting character went from the sextop Tawna in the first game to the more girlish Coco in the second game, in response to Japanese tastes.



Tawna character treatment, from **Crash Bandicoot**

Designer input

Japanese

North American

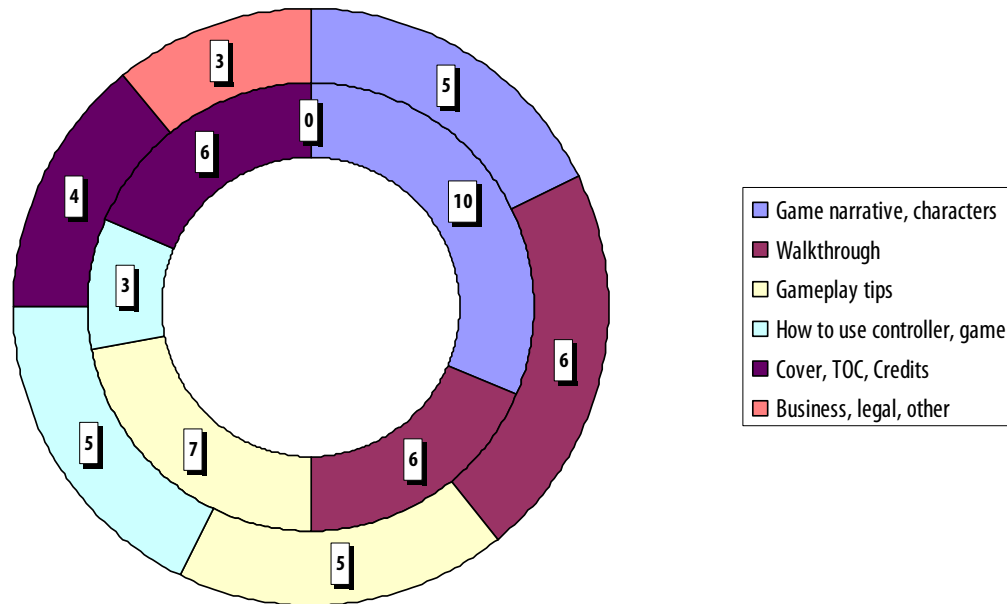
Coco character treatment in Japanese **Crash Bandicoot 2**. Note the brown eyes and subtle differences in pink shades in the Japanese Coco.  
Sources: (Tsurumi and Hasegawa 2003; Yoshida 2002)

**Figure 5: Design treatment of female supporting character**

Both the Japanese and North American **Crash Bandicoot** games are delivered as CD-ROMs in jewel cases. But the Japanese product's case is a hefty double-thickness, because it carries a substantial 32-page instruction booklet. The North American game's booklet is only four pages shorter, but printed on thinner paper, so it is only about half the weight and thickness.

The Japanese manual is brighter, more solid-looking, more colourful, and more friendly-feeling than the North American manual. It has the feel of a solid piece of added value, whereas the North American manual feels like a minimally-filled requirement. Because it gets right into an explanation of the game story, it feels like it is being more helpful. This is in line with the Mark Cerny's goal for the game to be *yasashii*, or easy/easy-going.

Some crude content analysis makes this difference clearer. Figure 6: Crash manual content differences, shows that the Japanese manual devotes 72% of its space (23 pages) to explaining the game narrative, characters, walkthroughs, and gameplay tips, while the North American game spends only 57% of its smaller space (17 pages) on this topic. It is also telling that the American manual devotes more than 10% of its space to business and legal issues, while the Japanese manual has zero.



Outer ring is North American **Crash Bandicoot** manual, inner ring is Japanese manual. Numbers are page counts devoted to each topic, out of 28 and 32 total pages respectively.

**Figure 6: Crash manual content differences**

## Conclusion

In the Japanese video game market, the **Crash Bandicoot** series stands out as a rare example of a foreign-designed game being a major hit in Japan. There were many components to that success, including strong marketing support from Sony Computer Entertainment. However, the game was localised impeccably for Japanese tastes. This localisation included upfront design that intentionally transcended culture, and that took Japanese market feedback into account. It also included localising the game product itself, in terms of game content, enabling technology, gameplay, and product packaging. Some of the localisation decisions seem to pick on details, but it is the details that count.

While the success of the **Crash Bandicoot** series is unusual, the localisation issues they face are not. From commentary by others, we see that these aspects of localisation apply to essentially all games. The only difference between product teams is who they choose to meet those challenges.

## Endnotes

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<sup>1</sup> (Swartz 2001) includes both consoles and PC software in these numbers, and cites NPD Group, International Development Group, CESA, and CSFB as his source.

<sup>2</sup> Based on the “Platinum Game charts” of million-selling games on the-magicbox.com (Magic Box 2004 (Japan); 2004 (US))

<sup>3</sup> Table from (Swartz 2001), based on data from Magic Box. Note that the European game sold less than 1 million copies in 2001, so it is not a contradiction that it doesn’t appear in the Platinum List for the US (Magic Box 2004).

<sup>4</sup> As of January 2004, with sales continuing (Carless 2004). Corroborated by (Cerny 2004).

<sup>5</sup> (Cerny 2004).

<sup>6</sup> “There are very few games developed outside US successful in Japan.” (Yoshida 2002, slide 25).

<sup>7</sup> “How to Make Your Game Successful in Japan”, Game Developers Conference 2003 (Tsurumi and Hasegawa 2003).

<sup>8</sup> “Next Generation Console Development and Production in the Global Market: Opportunities and Challenges”, Game Developers Conference 2002 (Yoshida 2002)

<sup>9</sup> Quoted in (Carless 2004).

<sup>10</sup> (Cerny 2004). Youge is spelled 洋ゲ and ヨウゲ in web usage.

<sup>11</sup> Simple arithmetic based on the global market share chart in (Swartz 2001).

<sup>12</sup> (Yoshida 2002, slide 26).

<sup>13</sup> (Yoshida 2002, slide 28).

<sup>14</sup> (Magic Box 2004). **Crash Bandicoot 3** is in a four-way tie for #86, and **Crash Bandicoot 2** is in a five-way tie for #94. Since Magic Box sorts by platform and producer rather than by rank, these ranks are approximate.

<sup>15</sup> Nintendo’s **Tetris** for the Gameboy ranks at #3, but it is arguable whether this represents a Japanese or foreign (Russian) game design. In any case, it is a different category than action games like **Crash Bandicoot**. A British company, Rare Ltd. (Rare 2004), developed some of Nintendo’s million-selling Donkey Kong titles, but they are of course based on a Japanese-designed character (Kent 2001).

<sup>16</sup> (Carless 2004).

<sup>17</sup> (Carless 2004).

<sup>18</sup> (Yoshida 2002, slides 31-36).

<sup>19</sup> Cerny’s bio taken from his interview comments in (Kirsch 2002) and (Kawamura 2003).

<sup>20</sup> Playstation chronology taken from (ign.com 1998), and corroborated by charts in (Shintaku 2002) and (Swartz 2001).

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<sup>21</sup> Product details are listed in bibliography as follows: Crash Bandicoot US version: (Naughty Dog 1996); Japanese version: (Naughty Dog 1996). Crash Bandicoot 2 US version: (Naughty Dog 1997); Japanese version (Naughty Dog 1997).

<sup>22</sup> The Naughty Dog chronology in this section paragraphs is drawn primarily from Naughty Dog's time line at (Naughty Dog 2004).

<sup>23</sup> 宇宙初の奥スクロールアクションゲーム! (*uchuuhatsu no oku sukuro-ru akushon ge-mu!*)

<sup>24</sup> Personal communication (Cerny 2004).

<sup>25</sup> Personal communication (Turner 2004).

<sup>26</sup> Anecdote from (Cerny 2004), game sales in (Magic Box 2004).

<sup>27</sup> (Yoshida 2002, slide 30), (Roch 2000).

<sup>28</sup> "Yasashii" comment and game testing anecdote from personal communication (Cerny 2004).

<sup>29</sup> Microsoft Corporation defines localization as "The process of adapting a program for a specific local market, which includes translating the user interface, resizing dialog boxes, customizing features (if necessary), and testing results to ensure that the program still works" in their Globalisation portal (Microsoft 2004).

<sup>30</sup> (Yoshida 2002, slide 31)

<sup>31</sup> See the image of  $\times \rightarrow \circ$  in (Roch 2000, slide 15)

<sup>32</sup> (Yoshida 2002, slide 32) shows how the Tawna character from **Crash Bandicoot** was softened into a much less sexy, more girlish Coco in **Crash Bandicoot 2**. Most of Tsurumi and Hasegawa's presentation (Tsurumi and Hasegawa 2003) is about product packaging and visual treatment of characters.



## Bibliography

- Carless, Simon. *Lost In Translation--Japanese and American Gaming's Culture Clash* [Web page]. Gamasutra.com 2004 [cited. Available from [http://www.gamasutra.com/features/20040121/carless\\_01.shtml](http://www.gamasutra.com/features/20040121/carless_01.shtml)].
- Cerny, Mark. 2004. Interview. Palo Alto, CA, USA, 1/30/2004.
- ign.com. *History of the Playstation: The greatest story every told* [Web page]. psx.ign.com 1998 [cited. Available from <http://psx.ign.com/articles/060/060188p1.html?fromint=1>].
- Kawamura, Shigeru. 2003. Mr. Mark Cerny, Cerny Games President. *Mainichi Interactive News*, December 19, 2003.
- Kent, Steven L. 2001. Naughty Dog earns rare success. *The Japan Times Online*, August 2, 2001.
- Kirsch, Bernhard. *Interview with Marble Madness Designer Mark Cerny* [Web site] 2002 [cited. Available from <http://www.bodenstaendig.de/marble/atariga.htm>].
- Magic Box, The. 2004. *Japan Platinum Game Chart* [Web page] 2004 [cited 2004]. Available from <http://www.the-magicbox.com/topten2.htm>.
- . 2004. *US Platinum Game Chart* [Web page] 2004 [cited 2004]. Available from <http://www.the-magicbox.com/Chart-USPlatinum.htm>.
- Microsoft. *Global Development and Computing Portal*. Microsoft Corporation 2004 [cited. Available from <http://www.microsoft.com/globaldev/default.mspx>].
- Naughty Dog, Inc. 1996. *Crash Bandicoot*. In *Crash Bandicoot series*: Universal Interactive Studios, Inc.
- . 1996. *Crash Bandicoot (Japanese)*. In *Crash Bandicoot series*: Universal Interactive Studios, Inc.
- . 1997. *Crash Bandicoot 2: Cortex Strikes Back*. In *Crash Bandicoot series*: Universal Interactive Studios, Inc.
- . 1997. *Crash Bandicoot 2: Cortex Strikes Back (Japanese)*. In *Crash Bandicoot series*: Universal Interactive Studios, Inc.
- . *Naughty Dog Crash Bandicoot retrospective site* [Web site] 2004 [cited. Available from <http://www.naughtydog.com/legacy/crash/index.htm>].
- Rare, Ltd. *Rare Ltd. corporate web site* 2004 [cited. Available from <http://www.rareware.com/>].
- Roch, Stuart. 2000. *Localizing for Japan: Wildroid 9 Case Study*. Paper read at Game Developers Conference, at San Jose, CA.
- Shintaku, Junjiro. 2002. *Video Game Industry: Recent Trend in Japanese Market and Comparison with US Market*. Paper read at Seminar on Japanese Game Industry, March 26, 2002, at Sungkyunkwan University, Seoul, Korea.
- Swartz, Bill. 2001. *Status of Japanese Games Overseas, and State of the Japanese Game Market As Seen From Overseas*. Tokyo, Japan: Tokyo University.
- Tsurumi, Ropyyaku, and Ryoichi Hasegawa. 2003. *How to Make Your Game Successful in Japan*. Paper read at Game Developers Conference.

Turner, Kelly. 2004. Interview. Palo Alto, CA, USA, 1/13/2004.

Yoshida, Shu. 2002. Next Generation Console Development and Production in the Global Market: Opportunities and Challenges. Paper read at Game Developers Conference, at San Jose, California.

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